

## Westmorland Geological Society

### Regionally extensive ejecta layer of the Australasian tektite strewn field: the MIS 20 large meteorite impact in Indochina

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Abbot Hall Social Centre, Kendal

For more than 50 years, aspects of the Quaternary sedimentary geology of South-East Asia have proven problematic in terms of interpretation as to the origins and relationships of the surface sediment layers. A large meteorite impact (c. 750 to 800ka BP) occurred within Indochina, as is evident from the well-researched 'Australasian Tektite Strewn Field' which extends over one tenth of the surface of the Earth. Key questions include: is the sedimentary impact signature recognisable and preserved in the Quaternary sediment cover of the region; and can stratigraphic indicators and dating methods discriminate meteorite-impact related associations of sedimentary strata, despite subsequent reworking and diagenesis. The importance of the questions raised relate to the search for the impact site, which has not been located conclusively. A hypothesis was developed and will be described in this talk. The results of the investigation explain the nature of the stratigraphy and relate it specifically to the MIS 20 meteorite impact. In this manner, the strata and sedimentary signatures of the ejecta from a large cosmic impact are defined across a broad region, rather than being described at singular and isolated sections. A summary model of impact stratigraphy is presented that applies to the regional ejecta blanket covering at least 300,000km<sup>2</sup>.



Typical section through meteorite impact breccia and cover sand sequence

### Biography

Paul is a geomorphologist with a geological bent! His interests are broad, but largely have focussed on large river dynamics and sediment deposits. A special focus has been the deposits of Quaternary outbreak floods from ice-dammed lakes, notably within the Altai Mountains of southern Siberia. During Covid 'lock-down' he turned his attention to local Devensian glaciation problems in the landscape close to his home near Orton. He retired in 2015 and is now Emeritus Professor of Physical Geography, University of Southampton and has developed strong links with several Chinese institutions which are developing capability in laboratory and field studies of ice-dammed lake outbreak floods.